

# **INFORMATION TECHNOLOGY INFRASTRUCTURE LINE OF BUSINESS (ITI LoB)**

## **NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION IT INFRASTRUCTURE OPTIMIZATION PLAN, 2008-2012**

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## INTRODUCTION

The National Oceanic and Atmospheric Administration (NOAA), as elsewhere in government, historically followed an organization business model that values the distinctiveness of each of its 6 line offices, plus the headquarters operation. The line offices are funded largely as separate budgetary activities under the NOAA program component of the Department of Commerce budget, and have developed and maintain significant portions of the NOAA information technology (IT) infrastructure as separate operations. Without an organic act and compatible budget structure there are significant impediments to consolidating IT investments across line offices. As elsewhere in both public and private sectors, NOAA's IT infrastructure collectively has become a complex collection of server-specific and siloed services, such as e-mail servers, help desks, and network management etc.

Prior to the ITI LoB official initiation in 2006, NOAA took steps toward integrating its IT infrastructure to leverage economies of scale, to reduce costs and risks, to increase the quality and consistency of service, and to enhance the bureau's performance of its core missions. Current efforts include resource sharing, consolidation, redundancy elimination, and resource leveraging, such as establishment of webserver farms and consolidation of corporate applications in a centralized data center.

In accordance with the IT Infrastructure Lines of Business (ITI LoB) initiative and eGovernment component of the President's Management Agenda (PMA), NOAA forges ahead to identify, integrate, or consolidate, where feasible, functions performed widely and with little differentiation across many of its line offices. The ITI LoB aims to realize four long-term outcome goals:

- Interoperability of functions across Federal agencies and programs;
- Collaboration within and across agencies, sectors, and government levels;
- Reductions and avoidances in the total cost of commodity IT infrastructure and a return of savings to agency missions; and
- Improved governance of IT infrastructure investment in support of agency missions, programs, and government-wide goals.

NOAA plans to target business processes that are being developed through a collaborative approach and implemented through shared solutions, enabling standardization throughout corporate NOAA and the line offices. To carry out its objectives, the NOAA OCIO staff follows OMB and departmental guidance and works closely with GSA, and our counterparts in other Commerce operating units (OUs) to foster a partnership that enhances our ability to optimize our investment in IT to enable more efficient and effective Government service to our citizens.

As ITI LoB identified, the government's business case seeks to save between 16% and 27% annually on its aggregate \$21B+ IT infrastructure budget, reflecting a cost reduction or avoidance of between \$18B and \$29B over ten years, based on a five-year technology refresh cycle.

The key to delivering such results is the development of common metrics, benchmarks, and an analytical foundation to facilitate assessments of optimization efforts in three IT infrastructure commodity areas. As defined by the ITI LoB, these include: End User Systems and Support (EUSS), Telecommunications Systems and Support (TSS), and Mainframe and Server Services and Support (MSSS).

The ITI LoB was tasked to develop cost and service level performance targets for all three areas of infrastructure and to collect and report to OMB agency annual performance data. In order to accomplish this, throughout FY 08, agencies are asked to collect and provide information on their baseline performance for these three infrastructure areas.

By the end of FY08, agencies will be asked to report performance information on their costs and service levels in End User Systems and Support using performance metrics developed by ITI LOB; and in FY 09 agencies should report information on their costs and service levels in all three infrastructure areas. Once targets are established, agencies are requested to develop and submit 5-year optimization plans (and annual updates); and annual reports to update progress towards meeting or exceeding the performance targets. Agency 5-Year Optimization plans are due Q2 FY 08. The first progress report for End User Systems and Support will be due in March 2008.

### Infrastructure Area Definitions

Office of Management and Budget identified and the Executive Steering Committee concurred three major areas for IT infrastructure optimization:

**End User Systems and Services (EUSS)** – End User Systems and Services includes the people, processes, and reliable and secure technology necessary to enable and support an end user in their interaction with information technology services. EUSS include office automation (e.g., word processing, spreadsheets, graphics, messaging, and collaboration) capabilities; workstations (e.g., desktops/laptops, Personal Digital Assistants, telephones, handheld devices, and associated software); printers, copiers, scanners, fax machines, and other similar devices; and workgroup/distributed servers and software. End User Systems and Services include frontline user assistance, often referred to as help desks.

**Telecommunications Systems and Services (TSS)** – Telecommunications Systems and Services includes the people, processes, and reliable and secure technology to provide "any transmission, emission, or reception of signs, signals, writings, images, sounds, or information of any nature by wire, ITI LoB, visual, or other electromagnetic systems"

**Mainframe and Server Services and Support (MSSS)** – Mainframe and Server Services and Support (MSSS) include people, processes, and reliable and secure technology to provide physical or logical centralized or aggregated computer systems and related services to one or more parts of the enterprise(s). MSSS provide applications processing capabilities; data repositories and archiving resources; and associated development, operations and management services. MSSS may include a housing facility with associated environmental controls (air conditioning, fire suppression, physical security, etc.).

To achieve IT commodity cost efficiencies and to improve service levels, the ITI LoB contracted with Gartner to standardize metrics used to determine IT optimization across these commodity areas and to develop measures that enable consistent analyses of improvement efforts across the Federal government. Twenty-two Federal civilian and military agencies participate in the ITI LoB. Further, in November 2007, OMB requested all agencies to revise its IT infrastructure business cases (Exhibit 300) encompassing all office automation, infrastructure, and telecommunications to support the government-wide ITI LoB.

## NOAA IMPLEMENTATION STRATEGY & GOALS

The ITI LoB is acting as a new force to make NOAA and other government agencies embrace a more interconnected, collaborative business model. It is also a key component of NOAA's participation in DoC's approach to expanding E-Government, other initiatives, and other Lines of Business. The ITI LoB creates for NOAA a high priority on the need for IT infrastructures to better support business integration and transformation efforts. NOAA will utilize ITI LoB-developed tools for enhancing use of IT investments by minimizing redundancy, improve access to information and services, and reduce response time to citizens. This supports the DoC's vision and goals to be efficient, citizen-centered and results-oriented. NOAA supports Department plans to implement these strategies to realize the ITI LoB goals by:

- Integrating current initiatives into the Department's IT strategy and Commerce Enterprise Architecture to reduce the risk of duplicative efforts;
- Developing and adopting consistent standards to encourage interoperability; and
- Leading and coordinating initiatives with all OUs and other agencies to improve the ITI LoB reports.

By implementing the ITI LoB, NOAA seeks to build an agile framework to accommodate changes and new demands. During the next 5 years, NOAA will implement, to the extent feasible, the following best practices to optimize the infrastructure necessary to support the initiative:

- Ensure that planning for direct mission programs include the full cost of the program by identifying and accurately costing IT infrastructure services as input into the planning phase of its enterprise decision-support system, the Planning, Programming, Budgeting, and Execution System (PPBES);
- Manage the IT infrastructure as a portfolio to provide reliable, high quality mission support services;
- Investigate adoption of IT Infrastructure Library (ITIL) to address complexity of the Commerce IT infrastructure, its underlying architecture, limited IT budgets, and increasing demands from clients and end-users;
- Manage the IT infrastructure performance against service level agreements;
- Address IT infrastructure in the NOAA enterprise architecture.

# NOAA IT INFRASTRUCTURE OPTIMIZATION PLAN

## A. EXECUTIVE SUMMARY

### 1. Purpose of the IT Infrastructure Optimization Plan

The Department of Commerce has taken steps toward the ITI LoB direction by extending its Enterprise Architecture focus to our IT infrastructure optimization, and DoC's consolidated infrastructure approach is in direct alignment with that strategy and by involving IT investment reviews and guidance (Commerce Capital Investment & Planning & Control— eCPIC process) and the *Consolidated Infrastructure Report*<sup>1</sup> of other investments as a mechanism to accurately portray the Department's efforts to improve the management of its infrastructure in areas such as resource sharing, consolidation, redundancy elimination, and resource leveraging.

By realizing the ITI LoB value, the Department is now ready to move toward ITI LoB defined strategy to optimize the Commerce IT commodity infrastructure. Through use of appropriate aggregation, efficient intra-agency service standards, and best practices appropriate to bureau mission requirements, the Department expects to significantly improve the efficiency of our IT infrastructure. Our focus, much like that of the ITI LoB, will be on data centers, data networks, and desktop management. The Department has started addressing the IT infrastructure consolidation in the last few years by focusing in three major objectives:

- To operate and maintain an evolving infrastructure that supports mission objectives,
- To improve services provided so that our customers have timely, reliable, and cost-effective access to Commerce information technology when and where they need it,
- To streamline and unify our IT infrastructure investments wherever possible.

In accordance with the IT Infrastructure Lines of Business (ITI LoB) initiative and eGovernment component of the President's Management Agenda (PMA), DoC forges ahead to identify or integrate, where feasible, functions performed widely and with little differentiation across many of its OUs. The ITI LoB was tasked to develop cost and service level performance targets for all three areas of infrastructure and to collect and report to OMB agency annual performance data. In order to accomplish this, throughout FY 08, agencies are asked to collect and provide information on their baseline performance for these three infrastructure areas.

As required, the Department, along with 21 other Federal government agencies, will submit the 5-Year Plans and annual reports on DoC performance results to the General Services Administration (GSA) ITI LoB Program Performance Measurement Office (PPMO) for government-wide consolidation, analysis, and reporting to the Office of Management and Budget (OMB). NOAA is among the 13 OUs coordinating their Plans with the Department's Plan. The scope of the 5-Year Plan includes improving service levels and cost efficiencies for government IT infrastructure in three areas: End User Systems and Support (EUSS), Telecommunications Systems and Support (TSS), and Mainframes and Servers Services and Support (MSSS).

This Five-Year IT Infrastructure Optimization Plan (5-Year Plan) for the Department of Commerce is based on OMB guidance for the ITI LoB initiative. However, the Plan also continues to chart the same

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<sup>1</sup> The report is a report to show progress that DoC and all operating units managing Commerce IT infrastructure. For more information, please refer to annual *Consolidated Infrastructure Reports*.

course that was defined in the Department's IT Strategic Plan's goals, with better alignment by including performance objectives, and addressing these performance objectives provides the mechanisms needed to better manage the Department's IT infrastructure in accordance with this plan. The OMB will use the 5-Year Plans to monitor progress toward infrastructure optimization, achievement of specified cost and service levels, and support for the PMA. The Commerce Department's performance and those from other agencies will be benchmarked against private industry in three primary infrastructure categories within a specified schedule. The plans will also be used to identify agencies that have high performance results against the metrics and other indicators of optimization to facilitate information sharing among Federal agencies of successes and best practices. Further, the OMB will use the 5-Year Plans to identify agencies that may need assistance in support of their optimization plans and implementation strategies. The ITI LOB recognizes that agencies are at different points of maturity in the development of infrastructure optimization strategies and will support agency efforts to accelerate their progress, through information sharing, mentoring, and technical support.

### **Objectives of the Office of the Chief Information Officer**

The NOAA OCIO's objectives for optimizing IT infrastructure services are:

- Improve the cost-effectiveness of the infrastructure, achieving better mission performance for every infrastructure dollar spent, and
- Align NOAA's infrastructure with the Department's optimization plan.

### **Gartner's Observation of Department of Commerce's EUSS**

The Department of Commerce's core mission is to promote economic well being for all citizens, and each OU's mission is designed to focus on single strands of this major goal. OUs such as NOAA are accountable for their mission outcomes and, to no surprise, tend to keep IT infrastructure layers uniquely optimized to accomplish their critical tasks. However, The Gartner benchmark study tells DoC that the Department and the OUs can work together to design a new apparatus that works across all units while assuring individual OU delivery on their core missions. While NOAA is unique in the geographic and mission diversity of its constituent lines, NOAA will work collaboratively with the Department and fellow OUs to realize an integrated service-oriented architecture for a collaborative service delivery model.



## 2. Gartner's EUSS Results for Commerce Department

### Gartner's Observation of Department of Commerce's End User Supports System (EUSS)

#### Findings Summary

- The U.S. Department of Commerce is made up of diverse operating units, with missions and cultures that may not blend well for IT support, resembling a commercial enterprise that has acquired various companies.
- The Department has several operating units that have just a few hundred end-users but provide their own desktop support and Help Desks.
- Operating units have various data collection.
  - ✓ Some, such as PTO and NOAA, utilized past studies, enterprise asset management, and automated call distribution systems; others estimated items that they did not track.
  - ✓ All operating units appeared to have confidence in the asset and cost numbers they provided.
- Overall, DoC shows an average Total Cost per Device of \$1,705, which is within the Very Large Industry range, and a Total Cost per User of \$2,532, which is slightly above the top of the Industry range.
  - ✓ This 'average' performance is deceptive as the range between operating units varies widely.
    - EDA and OIG report about twice the Department's average Total Cost per Device while BEA and BIS report just about a quarter of the average.
    - Similarly, the Department's average of Cost-per-Handled-Contact (\$60.17) also varies widely within the operating units, more than double at NOAA but just a fraction at BIS.
- Operating units with smaller dispersed populations and multiple help desks suffer lower cost efficiency and productivity, a possible result of minimum requirements at each location.
  - ✓ If 24 x 7 coverage is required in multiple locations, staffing will invariably be higher than a more consolidated service.
- The smaller operating units within Commerce utilize the same people for both desktop support and IT Help Desk, with the emphasis on support, not process and tracking.
  - ✓ IT Help Desk workload may be under-reported as a result.

#### Recommendations

- Commerce's 'holding company' profile may not lend itself to full consolidation, but a federated vs. distributed approach can yield economies.
  - ✓ Supporting the smaller operating units by user-type profile rather than organizational lines can generate economies of scale, particularly in IT Help Desk.
    - Help desk technologies can help provide support with a localized, business-oriented feel while being highly leveraged.
  - ✓ The larger, more mission-specialized operating units will benefit from internal consolidation and standardization.
    - Process discipline can result in better service levels as well as reduced cost.



## B. OPTIMIZATION GOALS & STRATEGIES

DoC continues to envision IT infrastructure, as realized in the ITI LoB's Common Solutions, to be a cohesive, agile, and secure framework that enable and enhance DoC's mission. The IT strategic goals have been restructured to better align with the DoC business goals, and to better support follow-on investment planning efforts. There are five major goals:

| U.S. Department of Commerce's Major Goals in ITI LoB |  |
|--|--|
| <b>Goal 1</b>  | Facilitating efforts to consolidate, integrate, and coordinate the collection of all Commerce IT Infrastructure efforts.   |
| <b>Goal 2</b>  | Operating and maintaining an evolving infrastructure that supports the Department's mission objectives.  |
| <b>Goal 3</b>  | Improving services provided so that our customers have timely, reliable, secure, innovative, and cost-effective access to Commerce information technology when and where they need it. |
| <b>Goal 4</b>  | Enabling all Commerce employees to fulfill their responsibilities efficiently and effectively.   |
| <b>Goal 5</b>  | Streamlining and unifying our IT infrastructure investments whenever possible.   |

The history, in the Department and NOAA, of components providing their own infrastructure raises a cultural impediment to the transformation necessary to effect an enterprise-oriented IT infrastructure. DoC is investigating establishing a Center of Excellence business model to support multi-agency activities. Likewise, NOAA is investigating different models for an enterprise-oriented IT infrastructure such as delegating provision of categories of infrastructure service to individual line offices. Service level agreements (SLA's) will be required to address levels of support and costing models. Government is new at business fee-for-service models so architecting the provision of IT infrastructure services in NOAA is a first step to establishing the principle-based IT Infrastructure Management Framework for streamlining processes and actualizing potential cost savings. Only by achieving an actionable understanding of how it currently provides IT infrastructure services can NOAA optimize its share of the Department's consolidated IT infrastructure.

## C. Metrics, Operational and Performance

IT infrastructure optimization requires the ability to manage the infrastructure. Management requires an understanding of what the system is and how it operates. Finally, it requires the ability to recognize and measure the effect of management decisions. All this requires metrics, both operational and performance. The Major Technical Milestones (Table 2) and the discussion of service level agreements indicate how NOAA will develop and utilize infrastructure metrics.

## D. Baseline Analysis - Performance Reports

### 1. FY 2007 Baseline Analysis

*(This section contains detailed OU-specific and information on other agencies that will not be included in the final DOC report.)*

The following section features Gartner's findings for the Department's IT infrastructure in regards to End User Systems and Supports. In its process of identifying these notable performers, Gartner ranked the participating departments/agencies in the order of ascending cost efficiency. The rankings are provided in the table below. As Gartner noted in its Government-wide report in January 2008<sup>2</sup>, agencies that rank either very high or so low one must question the accuracy of the reported information or the viability of the operation. Gartner also note complication in identifying the lowest cost (i.e., highest performing) agencies because low cost, on its own, does not constitute good or best performance. Often, environments that are under-funded subject their user community to higher risk, less agility, or poorer performance. Gartner also believes that there truly is a "sweet spot" to which an organization should strive to operate - one that has balanced cost efficiency with these other factors.

| Total Cost per Device |                |          | Total Cost per User |                |           | Cost per Helpdesk Contact |                |          |
|-----------------------|----------------|----------|---------------------|----------------|-----------|---------------------------|----------------|----------|
| Agency                | Value          | Rank     | Agency              | Value          | Rank      | Agency                    | Value          | Rank     |
| SSA                   | \$623          | 1        | OPM                 | \$958          | 1         | NASA                      | \$10.53        | 1        |
| OPM                   | \$685          | 2        | VA                  | \$987          | 2         | DHS                       | \$12.25        | 2        |
| VA                    | \$765          | 3        | SSA                 | \$1,087        | 3         | OPM                       | \$16.72        | 3        |
| Labor                 | \$837          | 4        | Labor               | \$1,347        | 4         | HHS                       | \$19.81        | 4        |
| <b>Commerce</b>       | <b>\$1,263</b> | <b>5</b> | Interior            | \$1,683        | 5         | DOE                       | \$21.54        | 5        |
| USAID                 | \$1,328        | 6        | USDA                | \$1,969        | 6         | Interior                  | \$23.31        | 6        |
| USDA                  | \$1,342        | 7        | HHS                 | \$2,022        | 7         | NSF                       | \$28.77        | 7        |
| Interior              | \$1,361        | 8        | DOJ                 | \$2,190        | 8         | <b>Commerce</b>           | <b>\$60.17</b> | <b>8</b> |
| State                 | \$2,213        | 8        | Treasury            | \$3,344        | 8         | Labor                     | \$30.65        | 8        |
| DoD                   | \$1,401        | 9        | DoD                 | \$2,220        | 9         | GSA                       | \$30.84        | 9        |
| HHS                   | \$1,436        | 10       | DOE                 | \$2,279        | 10        | Treasury                  | \$33.74        | 10       |
| EPA                   | \$1,621        | 11       | DOT                 | \$2,463        | 11        | SSA                       | \$34.46        | 11       |
| SBA                   | \$1,762        | 12       | SBA                 | \$2,503        | 12        | DoD                       | \$37.68        | 12       |
| NSF                   | \$1,764        | 13       | <b>Commerce</b>     | <b>\$2,532</b> | <b>13</b> | EPA                       | \$37.68        | 13       |
| DOE                   | \$1,869        | 14       | USAID               | \$2,785        | 14        | DOJ                       | \$43.74        | 14       |
| DOT                   | \$1,910        | 15       | DHS                 | \$2,889        | 15        | USAID                     | \$50.36        | 15       |
| DOJ                   | \$1,944        | 16       | EPA                 | \$2,948        | 16        | USDA                      | \$57.87        | 16       |
| Treasury              | \$2,042        | 17       | HUD                 | \$3,329        | 17        | VA                        | \$58.54        | 17       |
| HUD                   | \$2,372        | 19       | NSF                 | \$3,511        | 19        | DOT                       | \$67.30        | 19       |
| GSA                   | \$2,471        | 20       | State               | \$4,068        | 20        | SBA                       | \$71.58        | 20       |
| DHS                   | \$2,538        | 21       | GSA                 | \$4,414        | 21        | HUD                       | \$91.42        | 21       |
| NASA                  | \$3,582        | 22       | NASA                | \$5,166        | 22        | State                     | \$208.47       | 22       |

In terms of Total Cost per Device, Gartner identifies the Social Security Administration (SSA), Office of Personnel Management (OPM), and the Department of Veterans Affairs (VA) have the lowest-cost. Commerce Department's ranking is very positive, taking the fifth place, right after the Labor Department. These agencies, including Commerce, reported costs less than half the bottom of the industry range and may well have environments that other departments/agencies cannot (or would not) consider emulating. Their low costs could also be the result of anomalous situations that

<sup>2</sup> Gartner's Government-wide report on End User Systems & Support (Task Order 001-ID No.C.4.1.8.1, January 8, 2008)

occurred only in FY2007. However, the picture changes significantly, as Gartner looks into Total Cost per User, while SSA, MOP, VA, and Labor still ranked among the top five, Commerce Department's rank dropped to 13<sup>th</sup> place.

As its report mentions, Gartner tends to view these results as an "indicative" benchmark which Gartner conducted during the course of this project, performance improvement interest can be focused in specific areas (e.g., hardware or personnel). Gartner did not provide explanation because it, in the interest of both speed and economy, did not gather enough detailed data to identify root causes. This approach more easily establishes a baseline and identifies obvious areas of potential cost savings opportunity - symptoms that may be subsequently considered for further data collection and analysis to identify root cause(s).

### ***i. Commerce EUSS Analysis Based on Gartner's 2007 Benchmark Results***

The below table, provided by Gartner, shows a birds-eye view of current status of the Department's IT infrastructure general costs and services in relation to comparable industry's situations. DoC's average Cost per Device is within the Industry range; however, this cost indicator varies widely among individual OUs as shown see in the "spider charts" and "quadrant charts" on the next few pages.

|   | Department of Commerce | Very Large Industry Group |              |
|---|------------------------|---------------------------|--------------|
|   |                        | Top Level                 | Bottom Level |
| Client & Peripheral Support                         |                        |                           |              |
| Cost Per Device                                     | \$1,263                | \$1,678                   | \$1,313      |
| Cost Per User                                       | \$1875                 | \$1,899                   | \$1,517      |
| Desktop & Mobile Devices Per Support FTE            | 127.13                 | 171.00                    | 149.00       |
| Restoration for Mission Critical - Within 4 Hours   | 78%                    | 95%                       | 95%          |
| Restoratin for High Priority - Within 8 Hours       | 76%                    | 95%                       | 95%          |
| Restoration for Medium Priority - Next Business Day | 75%                    | 90%                       | 90%          |
| Restoration for Low Priority - Second Business Day  | 62%                    | 90%                       | 90%          |
| IT Help Desk  |                        |                           |              |
| Cost Per Inbound Handled Contact                    | \$60.17                | \$28.76                   | \$21.98      |
| Contacts Per Support FFE Per Day                    | 7.93                   | 20.92                     | 16.00        |
| First Contact Resolution Percentage                 | 74%                    | 75%                       | 75%          |
| Speed of Answer Percentage                          | 46%                    | 90%                       | 90%          |
| Total: Client & Periphal plus IT Help Desk          |                        |                           |              |
| Total Cost Per Device                               | \$1,706                | \$2,023                   | \$1,577      |
| Total Cost Per User                                 | \$2,532                | \$2,296                   | \$1,820      |

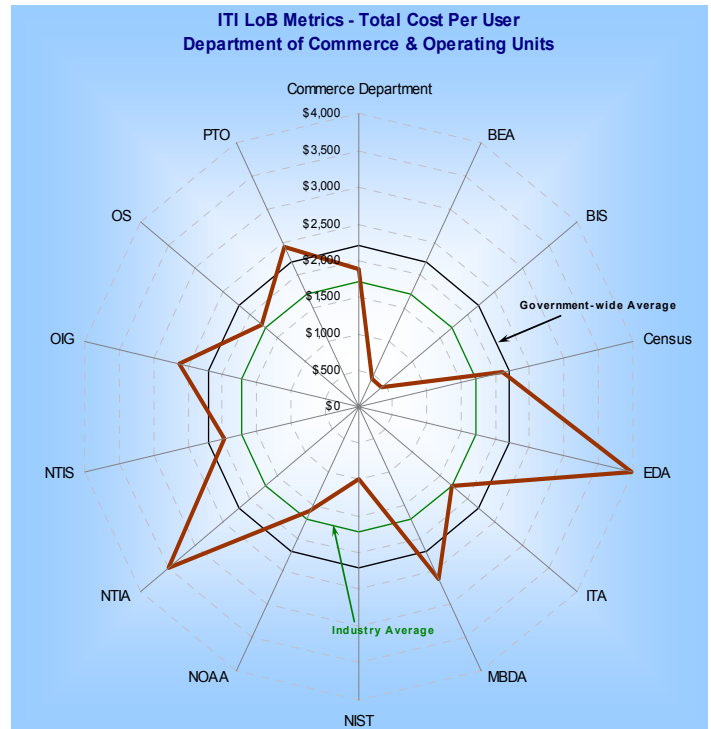
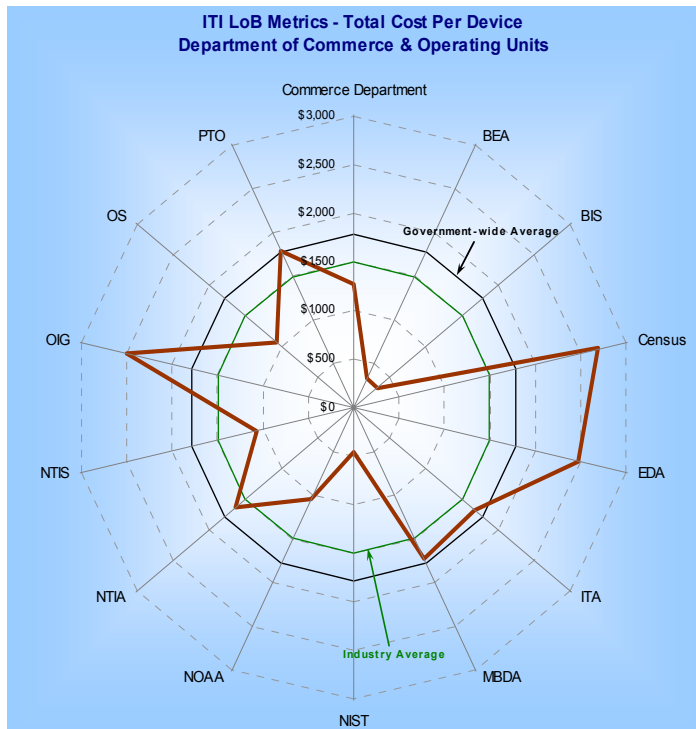
Since the end user size has a significant impact on the Department's ability to achieve cost efficiency, ITI LoB has directed Gartner to focus on four industry group sizes to enable its comparisons. The individual size-based industry ranges developed by Gartner for this comparison: Small organizations, which has Fewer than 3,000 end users; Medium group: 3,000 to 12,000, Large-size group: 12,001 to 22,000, and Very Large group: over 22,000 end users. Because of its size, Gartner placed the Commerce Department in the group of Very Large agencies.

## EUSS Costs Within Commerce Department

By using Gartner 2007 benchmark results for EUSS, the following “spider charts” explicitly show aggregate costs, Total Cost per Device and Cost per User, for all Commerce OUs against the industry averages (green line) as well as the Government-wide averages (black line).

If the costs for certain OUs, which are labeled on separate axes and connected with the brown line, fall on the outer edge of the green radar of the chart, this indicates that they have higher costs than the desirable industry average. On the other hand, if costs fall inside the green line, this indicates that these units have lower cost than the industry average.

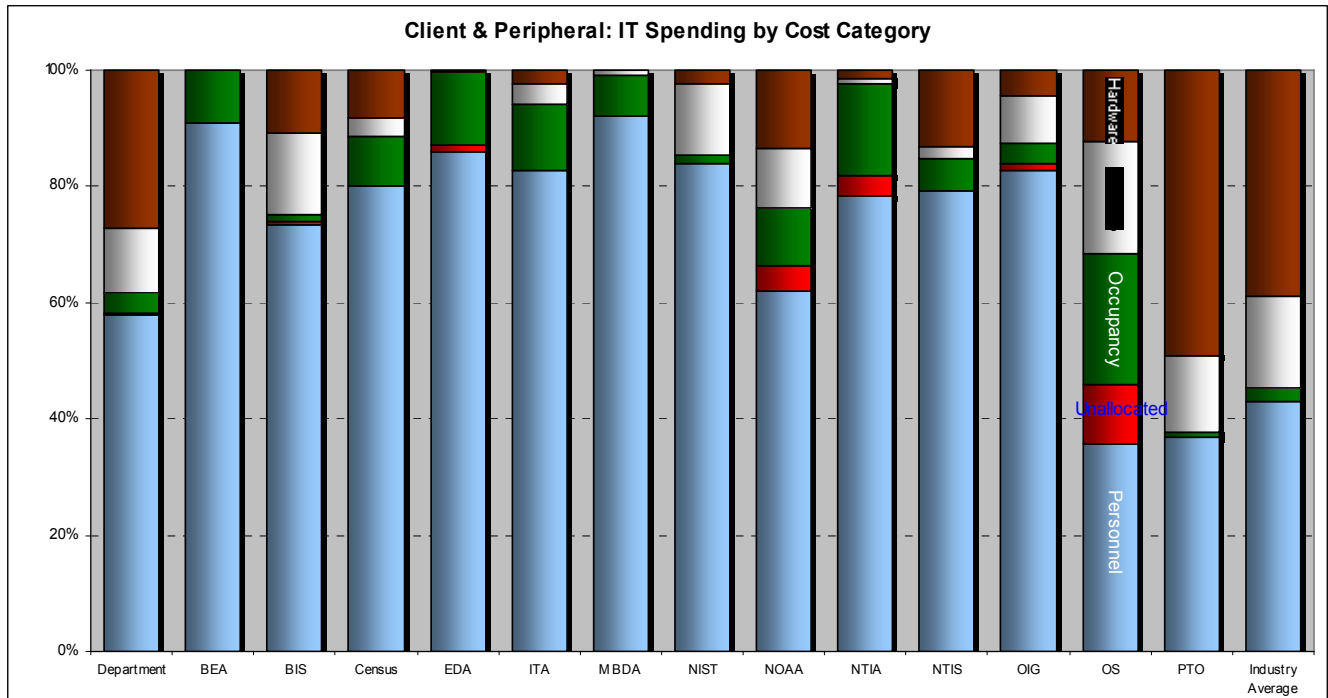
For both of these cost indicators, Commerce Department’s averages are just about the averages or within the industry range. Cost Per Device: At \$1,345 per year, Commerce’s cost per device for Client & Peripherals Support is just above the bottom of the Industry range of \$1,313 for Very Large environments. However, the Department’s individual OUs vary widely: While BEA, BIS, NIST, and OS have lower cost; most of the OUs show much higher costs.



Because client and peripheral accounts for about two-thirds of total costs for EUSS, the following chart on the next page break down costs by category for the Department and all OUs in comparison with the industry average.

In general, Commerce allocates higher portions of IT infrastructure spending to personnel expense, compared with the industry average. Similarly, personnel cost accounts for largest share of IT spending in most OUs except OS and PTO. In contrast, DoC allocates less than 40 percent of its spending to hardware and software costs, compared to about 55 percent in the industry average. By operating, shares of hardware and software costs together vary widely, ranging from just about nothing in BEA, EDS, MBDA, and NTIA to about 62 percent in PTO.

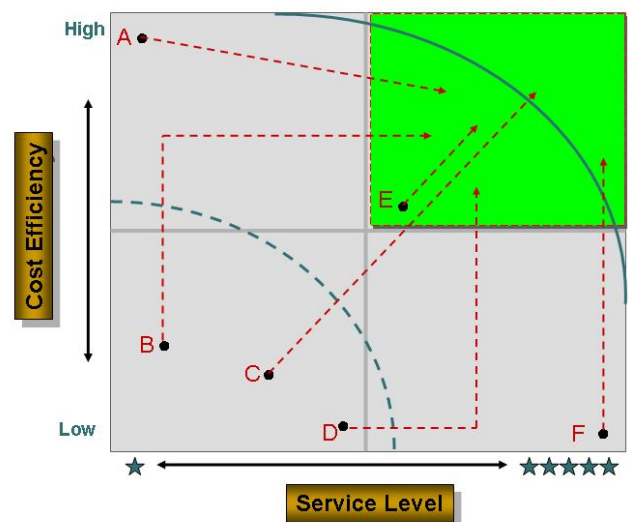
Another interesting factor is the occupancy cost, BIS estimates it accounts for just about nothing (1 percent) in its spending, compared to about 22 percent for the OS, even both units are located in the Herbert Hoover Building.



## ii. The Quadrant Chart

The heart of the ITI LoB performance measurement is the chart that compares performance of agencies against the industry average and against each other. The ITI LoB Common Solution identified this concept in a well-known Quadrant Chart — a dot for each Agency plotted against Cost Efficiency and Service Level, with the industry average as the benchmark axes. With the Y axis value representing Cost Efficiency and the X axis representing “Service Level,” any observations in the upper right-hand “green” or “optimal” quadrant are favorable. Agencies that are near or in the green quadrant demonstrate that they have achieved cost efficiency and service levels better than the industry average.

Gartner replicated this chart showing Agency cost metrics relative to service levels achieved and the industry cost efficiency metric range midpoint. The normalized service levels are plotted along the x axis, from lower to higher, left to right. The efficiency values are plotted along the y axis. The values represent the “Efficiency Offset” from the appropriate industry range midpoint, with a positive value representing cost efficiency.



### Gartner's Quadrant Chart For Very Large Agencies – Aggregate Cost per Device (Client and Peripheral Support plus IT Help Desk) in Relation to Normalized Composite Service Level

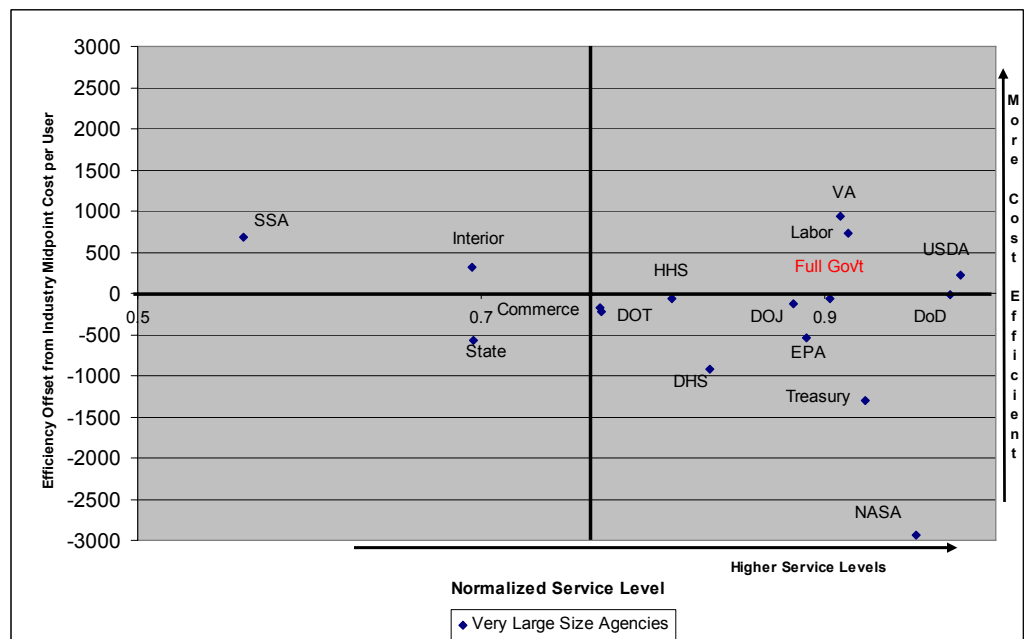
Based on the what Gartner found, the Department's EUSS 2007 performance in the area of Cost per Device was very positive. The Commerce Department fared better than the industry average for both cost efficiency and service level. Other agencies that belong to this quadrant include the Departments of Homeland Security, Defense, Agriculture, Veteran Affairs, and Labor.



By zooming to the Client & Peripherals component, the Commerce Department's result was also relatively positive, just around the industry average in both cost and service efficiencies. It's worth noting that although the Department showed higher efficiencies than some other agencies, the Department is still below the Government-wide (Full Govt) average. One interesting fact to note is that many of the Commerce OUs do not track service levels, Commerce falls below target in nearly all categories.

### Gartner's Quadrant Chart For Very Large Agencies – Client & Peripheral Support Only Cost per User in Relation to Normalized Composite Service Level

DoC uses the defined standard cost efficiency and service quality metrics for each of the areas. Commerce's performance in this report will be benchmarked against industry average performance levels obtained through a contract with an outside vendor. As Gartner indicated, the industry average levels will be adjusted for any uniquely federal requirements to ensure a meaningful benchmark for comparison. The target area (the top-right quadrant) for all government agencies will be to exceed these adjusted Industry Averages over time as agencies optimize their infrastructure.



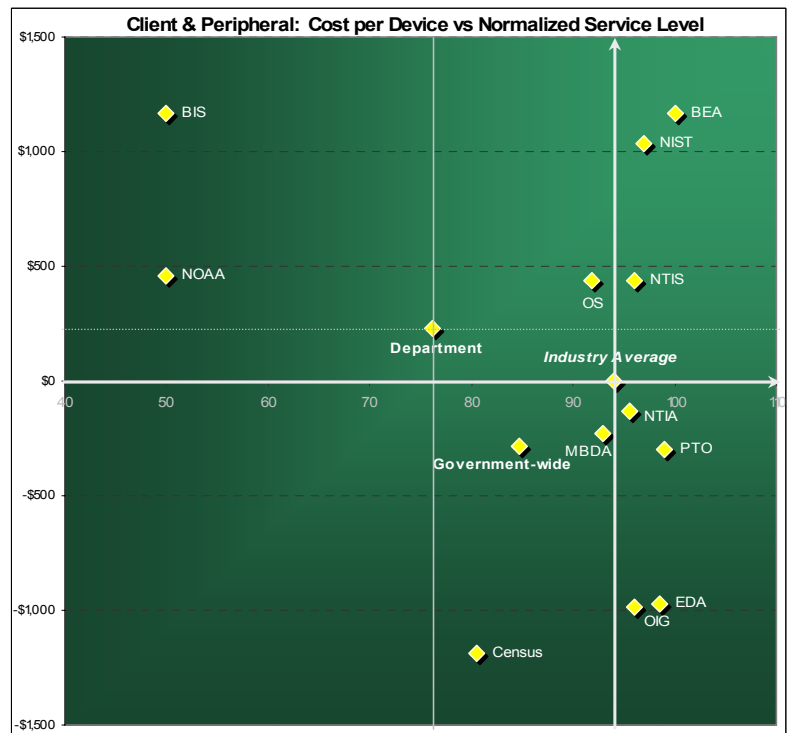


### iii. Commerce EUSS Quadrant Charts for the Department and Operating Units

#### Client & Peripheral Supports

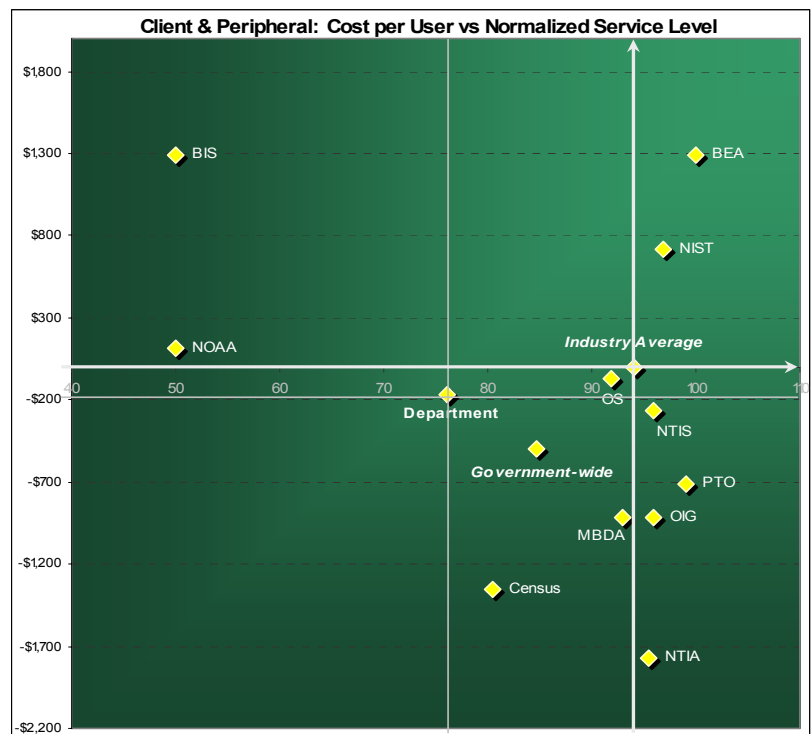
##### Commerce Department's Quadrant Chart — Client and Peripheral Support: Cost per Device in Relation to Normalized Composite Service Level for the Department and Operating Units

By taking the Gartner's analytical framework, the quadrant chart on the right shows similar analysis for the Department and all OUs in the area of Cost per Device in relation to normalized composite service level for Client and Peripheral Support. The quadrant chart on the right shows Cost per Device in Relation to Normalized Composite Service Level for Client and Peripheral Support. Again, BEA, NIST, plus NTIS belong to the more favorable quadrant, while most of other OUs demonstrate efficient service levels at higher costs.



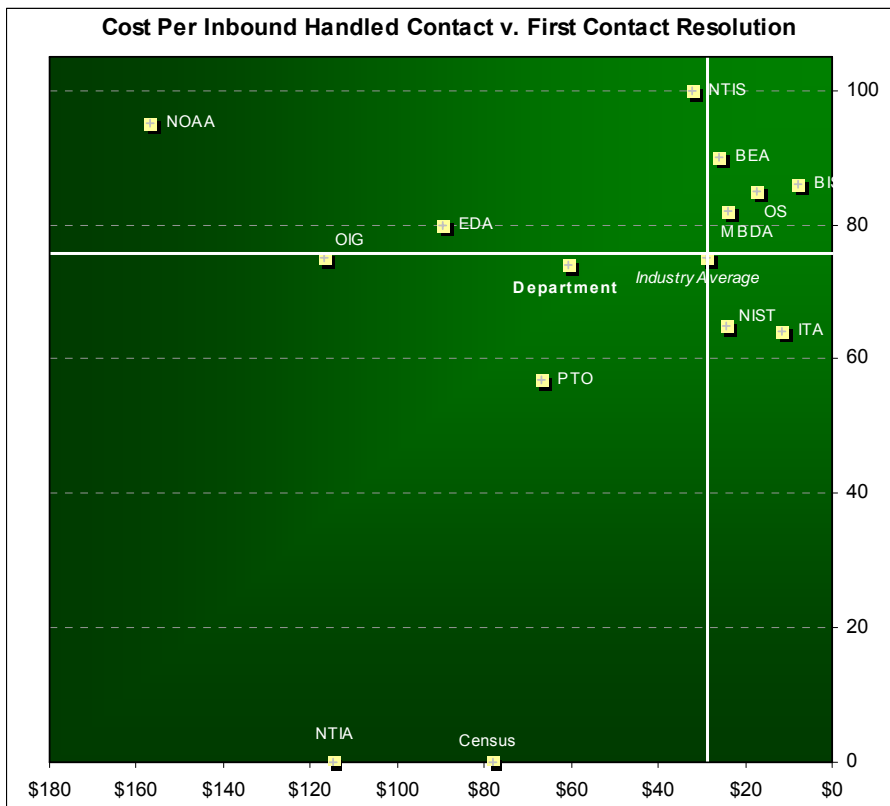
##### Commerce Department's Quadrant Chart — Client and Peripheral Support: Cost per User in Relation to Normalized Composite Service Level for the Department and Operating Units

Similarly, also for Client and Peripheral Supports, the quadrant chart on the right shows similar analysis for the Department and all OUs in the area of Cost per User in relation to normalized composite service level. While there were gaps in reporting, this metrics, in general, provides favorable performance. The chart shows the (Very Large) Industry average for consistent analysis and comparison. As the chart indicates, BEA and NIST belong to the more favorable quadrant, while most of other OUs demonstrate efficient service levels at higher costs. Because many OUs are not tracking service levels, Commerce falls below target in this category.



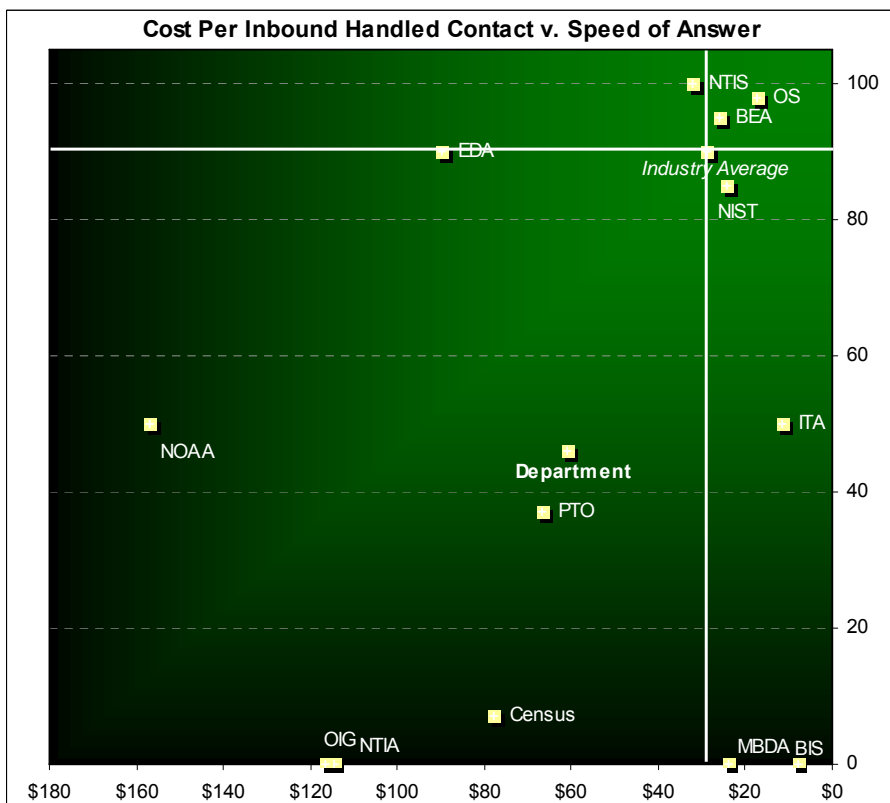


## Helpdesk Supports



**Commerce Department's Quadrant Chart — Helpdesk Supports: Cost per Inbound Handled Contact in Relation to First Contact Resolution for the Commerce Department and Operating Units.**

By taking the similar analytical framework, the quadrant chart on the left shows similar analysis for the Department and all OUs in the area of Cost per Inbound Handled Contact in Relation to First Contact Resolution for Helpdesk Supports. The quadrant chart on the left shows Cost per Device in Relation to Normalized Composite Service Level for Client and Peripheral Support. BEA, BIS, MBDA, and OS belong to more favorable quadrant, and most other units scatter elsewhere. Because many OUs are not tracking service levels, Commerce falls below target in this category.



**Commerce Department's Quadrant Chart — Helpdesk Supports: Cost per Inbound Handled Contact in Relation to Speed of Answer for the Commerce Department and Operating Units.**

Also for Helpdesk Supports, the quadrant chart on the left shows similar analysis for the Department and all OUs in the area of Cost per Inbound Handled Contact in Relation to Speed of Answer. There are gaps in reporting this metrics because many OUs do not track this component. As the chart indicates, BEA, OS and NTIS belong to the more favorable quadrant, while most of other OUs scatter elsewhere. Because many OUs are not tracking service levels, Commerce also falls below target in this category.

## b. Annual Performance Reporting

In the following table, NOAA aims to provide a side-by-side baseline to target comparison by infrastructure area. For each metric identify the optimization strategy (e.g., Centralize, Aggregate, Standardize, Rationalize, Consolidate, Automate, Leverage) and the sourcing strategy (i.e., outsource to private managed service provider, outsource to Government service provider, define and use own Internal standards.)

**Table 1A: End User Systems and Support (EUSS)**

|  | FY07<br>Baseline | Optimization<br>Target                         | Optimization<br>Strategy  | Sourcing Strategy   | Target<br>Completion<br>(Enter specific<br>FY)                                |
|--|------------------|--|---|---|---|
| <b>Total Cost<br/>per User</b>                       | \$2,219          | Industry's<br>average:<br>\$1,926 -<br>\$2,429 | Integration, shared<br>services, aggregate<br>purchases and best<br>practices | The services can either be centralized or distributed depending on user requirements, reliability, demand load, security limitation, and performance requirements. The converged network is scalable. It can start small and grow over time. Initially it can offer basic services such as Internet access. Over time, it can support on-demand services such as video conferencing, directory services etc. The services can either be centralized or distributed depending on user requirements, reliability, demand load, security limitation, and performance requirements.   | Target achieved   |
| <b>Total Cost<br/>per Device</b>                     | \$1,404          | Industry's<br>average:<br>\$1,655 -<br>\$2,124 | Aggregation   | Where aggregate buying is established, social and economic criteria will remain a factor and when other Agencies procure via the aggregate buyer they will receive their portion of the credit for meeting social and economic criteria consistent with that met by the aggregate buy. Performance based contracts shall be used by all IT commodity service providers for at least 75% of purchases (in dollar terms.) Public to public acquisitions will be used by agencies thereby service providers can conduct aggregate buying for volume discounts and to avoid startup problems for potential service providers who participate in this initiative development. Multiple providers will service different segments of the Federal IT commodity marketplace, and one selection criteria will be to ensure sufficient variety of OS and other standards to avoid lock-in on vendor proprietary standards. EVM will be required in contracts by service providers for all development work. | Target achieved   |
| <b>Cost per<br/>Help Desk<br/>Handle<br/>Contact</b> | \$156.74         | Industry's<br>average:<br>\$21.98 -<br>28.76   | Automation  | Automated technical support framework that will meet the needs of most agencies including those in secure vs. non-secure environments. This framework would work with the standard footprint for the desktop configuration and determine the frontline and backline support roles, with an aim to make an on-site staffing  | Target date dependent on outcome of telephone system modernization initiative |

# NOAA IT INFRASTRUCTURE OPTIMIZATION PLAN, 2008 - 2012

|  |     |                         |                 |  |   |
|--|-----|-------------------------|-----------------|--|---|
|  |     |                         |                 | presence at the desktop the least important part of the new help desk requirements.  |   |
| <b>Mission Critical Service Restoration Percentage</b> | 50% | Industry's average: 95% | <b>Leverage</b> | Leverage best practices from current E-Gov initiatives. Maintain strong cross-government working groups throughout the process and ensure timely and consistent communication to all federal agencies.<br>Establish and communicate service and financial values to incoming officials after elections, Maintain disciplined approach to rightsizing solutions to avoid providers too small for economic value and too large for competition and COOP/DR redundancy.<br>Utilize business case and comparable financial costing to ensure unit costs are well understood and therefore financial value can be shown to stakeholders and used in selections by Agencies. | Target date dependent on outcome of IT security initiative (eliminate single points of failure) |
| <b>Help Desk Speed of Answer Percentage</b>            | 50% | Industry's average: 90% |                 |  | Target date dependent on outcome of telephone system modernization initiative                   |
| <b>Help Desk First Contact Resolution Percentage</b>   | 95% | Industry's average: 75% |                 |  | Target achieved   |

Table 1B: Telecommunications Systems &amp; Support (TSS)

|  | FY07<br>Basel<br>ine | Optimization<br>Target | Optimization Strategy | Sourcing Strategy | Target<br>Completion<br>(Enter specific<br>FY) |
|--|----------------------|------------------------|-----------------------|-------------------|--|
| Wide-Area Data<br>Network Cost per<br>Device         |                      |                        |                       |                   |  |
| Wide-Area Data<br>Network Availability<br>Percentage |                      |                        |                       |                   |  |
| Local Area Network<br>Cost per Active Port           |                      |                        |                       |                   |  |
| Local Area Network                                   |                      |                        |                       |                   |  |
| Long Distance<br>Telephony Cost per<br>Minute        |                      |                        |                       |                   |  |
| Local Telephony<br>Cost per Extension                |                      |                        |                       |                   |  |
| Video Tele-<br>conference Cost<br>per Minute         |                      |                        |                       |                   |  |

Table 1C: Mainframes – Servers Services &amp; Support (MSSS)

|  | FY07<br>Baseline | Optimiza<br>tion<br>Target | Optimization Strategy | Sourcing Strategy | Target<br>Completion<br>(Enter<br>specific FY) |
|--|------------------|----------------------------|-----------------------|-------------------|--|
| Mainframe<br>Cost per<br>MIPS                  |                  |                            |                       |                   |  |
| Mainframe<br>Availability<br>Percentage        |                  |                            |                       |                   |  |
| Wintel Cost<br>per Server                      |                  |                            |                       |                   |  |
| Wintel<br>Server<br>Availability<br>Percentage |                  |                            |                       |                   |  |
| UNIX Cost<br>per Server                        |                  |                            |                       |                   |  |
| UNIX Server<br>Availability<br>Percentage      |                  |                            |                       |                   |  |

## E. DEPARTMENT OF COMMERCE'S OPTIMIZATION MILESTONES

The Commerce Department's plan for the ITI LoB organizes and describes existing cross-agency initiatives to increase awareness among agency leadership, increase the use of cross-agency initiatives as elements of agency enterprise architecture, and enhance government-wide benefits by accelerating the adoption of cross-agency initiatives.

Information published in the plan helps DoC to fulfill existing objectives and requirements to support the following goals that increase:

- DoC awareness and participation in cross-agency initiatives;
- The alignment of agency enterprise architecture with federal IT policy decisions or other forms of official guidance;
- Sharing and reuse of common cross-agency business processes, service components and technology standards; and
- Collaborating through agency participation in cross-agency communities of practice.

Publication of the plan tries to make reference to the agency enterprise architecture (EA) assessment process. Information is provided to agency officials and other stakeholders using a simple, repeatable process that is applied to establish clear relationships between cross-agency initiatives, agency enterprise architecture and agency IT investments.

DoC also plans to apply Federal Transition Framework Catalog to support the Department's EA planning and the EA assessment process. Incremental versions of the catalog can be released throughout the year to provide information to stakeholders describing new or revised policy objectives and initiatives.

The following table provides a current snapshot of the Department's infrastructure and the optimal goals that DoC aims for: (Table E.1)

| Commerce Department's IT Environment |                 |               |
|--------------------------------------|-----------------|---------------|
| Equipment / Environment              | FY 07 Benchmark | Optimal Goals |
| Total Desktops                       | 17,549          |               |
| Total Laptops                        | 8,648           |               |
| Total Handhelds                      | 2,051           |               |
| Total End Users                      | 16,998          |               |
| Desktops/Laptops Per User            | 1.54            |               |
| Total Annual Spending                | \$27,164,000    |               |
| Total Government FTE's               | 62.3            |               |
| Total Contractors                    | 108.85          |               |
| Percent of Outsource Spending        | 0%              |               |

In the table below, the Department lists major management control and technical milestones in your agency plan that correspond to each area of infrastructure and the Fiscal Year in which they will be accomplished and whether the goal impacts mission, technology, acquisition and/or governance. Provide target dates for each milestone. Report status and provide comments in bullet form.

**Table 2: Major Technical Milestones**

| Major Milestones   | Target Date     | Actual Date | Status and Comments  |
|--|-----------------|-------------|--|
| <b>End User Systems and Support</b>  |                 |             |  |
| <p>Milestone 1. <b>Baseline</b> — Specify baseline mode of business operations for the NOAA IT infrastructure to enable development of actionable performance metrics. Structure the artifacts that document the architecture to be compatible with the DOC's automated technical asset inventory.</p> <p>(Continue pre-existing related modernization initiatives).</p>   | FY2008          |             | <ul style="list-style-type: none"> <li>The IT Services sub-goal program, part of the Mission Support Program Area of the PPBES already packages most IT infrastructure capabilities for NOAA's enterprise planning process.</li> </ul>   |
| <p>Milestone 2. <b>Integrate IT Infrastructure Architecture into Portfolio of IT Planning and Management Documents</b> — Ensure that all pre-existing planning, management, and reporting processes include IT infrastructure requirements and that reporting is internally consistent across all processes. Specify structure and content of SLA's</p> <p>(Continue new and pre-existing related modernization initiatives).</p>  | FY2009 - FY2010 |             | <ul style="list-style-type: none"> <li>The portfolio of planning, management, and reporting processes serve to define the mission requirement for IT infrastructure capabilities. Integration will ensure that all information is captured and reconciled for coherent, mutually reinforcing decision-making.</li> </ul> |
| <p>Milestone 3. <b>Centralized Management of IT Infrastructure</b> — Complete transformation from distributed IT infrastructure services model to centralized model. Centralized model will be some combination of central, delegated, and outsourced provision of IT infrastructure service provision. Implement SLA-based management.</p> <p>(Continue new and pre-existing related modernization initiatives).</p>  | FY2011          |             | <ul style="list-style-type: none"> <li>Currently, portions of NOAA's IT infrastructure capabilities are provided by the line offices. Specialized provision will be more efficient than generalized provision.</li> </ul>  |
| <p>Milestone 4. <b>Enterprise Architecture IT Infrastructure Management</b> — Finalize formation of a program that organizes the Department's efforts to gain more efficiencies and economies in our IT infrastructure investments across NOAA. IT Infrastructure investments become much more visible to both executive and technical management. The program will require some changes to our existing governing structures (e.g., NOAA CIO Council, NITRB).</p> <p>(Continue new and pre-existing related modernization initiatives).</p> | FY2012          |             | <ul style="list-style-type: none"> <li>With all the necessary components in place, NOAA will be able to actively manage a consolidated IT infrastructure.</li> </ul>   |



| <b>Telecommunications Systems and Support</b>     |  |  |     |
|---|--|--|-----|
| • Milestone #1                                    |  |  | • A |
| • Milestone #2                                    |  |  | • B |
| • Milestone #3                                    |  |  | • C |
| • Milestone #4                                    |  |  | • D |
| <b>Mainframes and Servers Systems and Support</b> |  |  |     |
| • Milestone #1                                    |  |  | • A |
| • Milestone #2                                    |  |  | • B |
| • Milestone #3                                    |  |  | • C |
| • Milestone #4                                    |  |  | • D |

## F. COST AND SERVICE IMPROVEMENT PLANS

**Table 3: Improvement Plans**

| <b>Metric</b>                                   | <b>Projected percentage improvement per FY</b> |      |      |      |      |
|---|--|------|------|------|------|
|   | 2008   | 2009 | 2010 | 2011 | 2012 |
| <b>End User Systems and Support</b>             |  |      |      |      |      |
| Total Cost per Device <i>(examples shown)</i>   | \$1,037  | 4%   | 10%  | 7%   | 5%   |
| Total Cost per User                             | \$1,598  | 4%   | 10%  | 7%   | 5%   |
| Cost per Help Desk Handle Contact               | \$156.74                                       | 5%   | 10%  | 10%  | 10%  |
| Mission Critical Service Restoration Percentage | 50%  | 5%   | 10%  | 10%  | 5%   |
| Help Desk Speed of Answer Percentage            | 50%  | 10%  | 10%  | 10%  | 5%   |
| Help Desk First Contact Resolution Percentage   | 95%  | 1%   | 1%   | 1%   | 0    |
| <b>Telecommunications Services and Support</b>  |  |      |      |      |      |
| Wide area data network cost per device          |  |      |      |      |      |
| Wide area data network availability percentage  |  |      |      |      |      |
| Local area network cost per active port         |  |      |      |      |      |
| Local area network Local area network           |  |      |      |      |      |
| Long distance telephony cost per minute         |  |      |      |      |      |
| Local telephony cost per extension              |  |      |      |      |      |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
| Video teleconference cost per minute               |  |  |  |  |  |
| <b>Mainframes and Servers Services and Support</b> |  |  |  |  |  |
| Mainframe cost per MIPS                            |  |  |  |  |  |
| Mainframe availability percentage                  |  |  |  |  |  |
| Wintel cost per server                             |  |  |  |  |  |
| Wintel server availability percentage              |  |  |  |  |  |
| UNIX cost per server                               |  |  |  |  |  |
| UNIX server availability percentage                |  |  |  |  |  |

## G. IT INFRASTRUCTURE OPTIMIZATION CONSTRAINTS

Table 4: IT Infrastructure Constraints

| <i>Constraint Type</i>                  | <i>Specific Type of Impact (Security, "Last Mile", Constituent, Other)</i>   | <i>Measurement Impact</i>   | <i>Cost Impact</i>  |
|---|--|---|---|
| <b>End User Systems and Support</b>     |  |   |   |
| <b>Cost</b>                             | Ability to implement planned improvements: Process or system improvement usually requires some amount of new investment. In particular, consolidation of distributed activity requires new hardware where existing hardware cannot be scaled up to meet the consolidated load. | Without new investment, major improvements are not possible.  | Cost inefficiencies continue hidden among activities distributed across the organization. Total cost over time exceeds the total had the up-front investment been made.   |
| <b>Performance Measures</b>             | Feasibility of management improvement: Management requires the ability to correct a sub-optimal situation. However, it requires first that the situation is known.   | In the case of generalized services such as IT infrastructure, it is often necessary to re-engineer the system to make possible accurate and cost-effective measurement.  | Some cost inefficiencies will continue unidentified.  |
| <b>Policy Compliance &amp; Security</b> | There is no trade off between security and policy requirements in an efficient manner. IT infrastructure service delivery must comply with applicable policies and security requirement.   | IT infrastructure services could be provided without the added cost to the immediate customer of policy and security compliance. However, the government would incur unacceptable security risk and lose such benefits as economies of scale possible only by enforcing acquisition policies. | From the customer perspective, policy and security requirements may appear to add unnecessary cost. However, the policy and security requirements provide value to the government that may not be recognized by the customer. |
| <b>Workforce</b>                        | Providing an effective and efficient IT infrastructure requires more skilled personnel than does operating a less well managed infrastructure.   | Without the appropriate workforce, the optimized IT infrastructure will deteriorate.  | IT personnel skills, knowledge, and abilities will increase as the transition to more complex, online, interactive, Web-based systems continues.  |

|  |  |  |  |
|--|--|--|--|
| <i>Telecommunications Services and Support</i>     |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| <i>Mainframes and Servers Services and Support</i> |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## H. ENVIRONMENTAL INITIATIVES & COMPLIANCE (ESC's Requirement)

**Table 5: Environmental Goals or Milestones by Fiscal Year**

| <i>Fiscal Year</i> | <i>End User Systems and Support</i>  | <i>Mainframes and Servers Services and Support</i> | <i>Telecommunications Systems and Support</i> |
|--------------------|--|--|---|
| <b>2008</b>        | Goals/Milestones:<br>1. Identify sources of green IT products<br>2. 3 R's: Reduce, Reuse, and Recycle  | Goals/Milestones<br>1.<br>2.                       | Goals/Milestones<br>1.<br>2.                  |
| <b>2009</b>        | Goals/Milestones<br>1. Take holistic approach to reducing IT energy consumption<br>2. Define policy and strategy for addressing environmental cost of IT | Goals/Milestones<br>1.<br>2.                       | Goals/Milestones<br>1.<br>2.                  |
| <b>2010</b>        | Goals/Milestones<br>1. Start measuring and analyzing<br>2. Create an asset disposition policy process, controls, and audit trails                        | Goals/Milestones<br>1.<br>2.                       | Goals/Milestones<br>1.<br>2.                  |
| <b>2011</b>        | Goals/Milestones<br>1. Green procurement   | Goals/Milestones<br>1.<br>2.                       | Goals/Milestones<br>1.<br>2.                  |
| <b>2012</b>        | Goals/Milestones<br>1.<br>2.   | Goals/Milestones<br>1.<br>2.                       | Goals/Milestones<br>1.<br>2.                  |

## I. LIST IT INFRASTRUCTURE TOOLS USED

Because of DoC's organizational structure, the Department has averted any central form IT infrastructure asset management; however, OUs have practiced various set of business tools or procedures that join financial, contractual, and inventory functions to support life cycle management and strategic decision making for the IT environment. Commerce OUs follow different practices to achieve some of these objectives, including gaining control of the IT inventory; increasing accountability to ensure compliance; reducing risks through standardization, proper documentation, loss detection; enhancing security as well as performance of assets and the life cycle management; and realizing savings through process improvement and support for strategic decision making.

IT infrastructure assets include all elements of software and hardware that are found in the business environment. DoC will seek to put in place an effective IT infrastructure management because it is the key to ensuring that everything about the Department's operations - workforce, facilities, equipment, and processes - is working to their best advantage. DoC takes in consider the following questions as it assesses the Department's infrastructure and how it contributes to the success of our organization:

- What do we own?
- Do we know where it is?
- How well is it working?
- How much is it costing us?
- How well is it supporting the Department's business?

A system of practices to efficiently manage information technology and related assets throughout the life cycle phases of requisition, procurement, deployment, maintenance and retirement. At its core is an integrated data repository that contains:

- Asset tracking – technical information about the equipment or software
- Portfolio information – acquisition and financial details
- A contract database – summarizing key licensing and maintenance contract terms and conditions

Asset Management and Discovery tools that shares software distribution tools with Change and Configuration Management to perform automated deployment and reclamation of software assets.

**Table 6: Infrastructure Management Tools Used**

| <b>Function/Service Component</b>          | <b>Hardware Tool</b> | <b>Software Tool</b>                   | <b>Owner (Government, Lease, Contractor)</b> | <b>Operator (Government, Contractor)</b> |
|--|----------------------|--|--|--|
| <b>Network Discovery</b>                   |                      | PatchLink Scanner, NESSUS              | Government                                   | Government and Contractor                |
| <b>Desktop Discovery</b>                   |                      | SMS<br>PatchLink Scanner, NESSUS       | Government                                   | Government and Contractor                |
| <b>Asset Management</b>                    |                      | Sunflower                              | Government                                   | Government and Contractor                |
| <b>License Management</b>                  |                      | Excel, Vendor's DB                     | Government                                   | Government and Contractor                |
| <b>Maintenance Agreement Management</b>    |                      | Excel, Vendor's DB                     | Government                                   | Government and Contractor                |
| <b>Service Level Agreement Management</b>  |                      | MS Office                              | Government                                   | Government and Contractor                |
| <b>Help Desk</b>                           |                      | HEAT                                   | Government                                   | Government and Contractor                |
| <b>Helpdesk Phone System (ACD/VRU/IVR)</b> |                      |  |  |  |
| <b>Change Management</b>                   |                      | FrontRange<br>HEAT, iHEAT, Remedy, CVS | Government                                   | Government and Contractor                |
| <b>Configuration Management</b>            |                      | Remedy, HEAT                           | Government                                   | Government and Contractor                |
| <b>Enterprise Architecture Repository</b>  |                      | MS Office, CasaNOSA                    | Government                                   | Government and Contractor                |
| <b>Document Management</b>                 |                      | SharePoint, WebCIMS                    | Government                                   | Government and Contractor                |
| <b>E-Mail System</b>                       |                      | Sun ONE, Mozilla Thunderbird           | Government                                   | Government and Contractor                |
| <b>Network Monitoring</b>                  | McAfee Intrushield   | McAfee Intrushield, What's Up Gold     | Government                                   | Government and Contractor                |

|                              |                       |                                      |            |                              |
|------------------------------|-----------------------|--------------------------------------|------------|------------------------------|
| <b>Security Monitoring</b>   | McAfee<br>Intrushield | McAfee<br>Intrushield,<br>Lucent LMF | Government | Government and<br>Contractor |
| <b>Web Statistics</b>        |                       |                                      |            |                              |
| <b>Software Distribution</b> |                       | SMS                                  | Government | Government and<br>Contractor |
| <b>Patch Management</b>      |                       | PatchLink,<br>Red Hat<br>Network     | Government | Government and<br>Contractor |
| <b>Service Chargeback</b>    |                       | MS Office                            | Government | Government                   |

**NOTE:** Any of the above-mention Function/Service components can be categorized as:

- Government Owned and Government Operated, (**GOGO**),
- Government Owned and Contractor Operated, (**GOCO**), or
- Contractor Owned and Contractor Operated, (**COCO**)

## J. SERVICE LEVEL AGREEMENTS

### Introduction

Service Level Agreements (SLA's) will be a key contributor to optimizing NOAA's IT infrastructure. The NOAA CIO will employ SLA's to establish agreements between the service provider(s) and the mission customers specifying infrastructure services necessary for mission execution. Creating SLA's is a non-trivial exercise and will be an important element among the many activities comprising the optimization plan.

### Service Level Agreement Determination

It is important to determine which Service Level Agreements the service provider must enter into. The service provider must be cognizant of its objectives, customer utility, and the effort involved when agreeing to SLA's. This is the SLA determination problem. It involves a careful and deliberate decision-making about determining optimal SLA's.

SLA's are a major consideration in estimating costs for all infrastructure areas. An SLA is a specification for a measurable service to be delivered within an agreed upon range of performance at an agreed upon price, set up pre-ante. SLA's are the single largest driver of costs, strategies and solutions. It is imperative that the SLA performance measures are verifiable by the customer.

To obtain optimum cost effectiveness consistent with mission customers' requirements, the NOAA CIO will work with the DoC CIO to develop, or select PPMO-provided, SLA templates which involve:

- Flexible, allowing DoC and operating units to choose which level of service best supports their budget and their requirements (system classification level, mission criticality etc.);
- Prioritized services;
- Designed around a method of charge back or fee-for-service which is a basis for timeliness of charges;
- Assurance of end-to-end perspective of performance management;
- Incentives and disincentives; and
- Standards and requirements for interoperability between organizations.

### SLA Decomposition: Performance, reliability, availability

SLA decomposition enables creating low-level policies from high-level goals. The intent here is to take high-level goals and derive or infer low-level policies that can then be validated to assess the system performance. Traditionally, design of systems and determination of thresholds of metrics for the purpose of monitoring has been done by domain experts. The SLA Decomposition problem is an attempt to automate the process of translating high-level requirements into lower level thresholds that may be used for sizing and/or monitoring.

NOAA will employ the methodology of enterprise architecture to develop its infrastructure SLAs. This approach uses analytical models to capture the relationship between high level performance goals (e.g., response time of the overall system) and the refined goals for each component (e.g., average service time of each component).

While one of the keys to optimization in this area is standardization, there should be flexibility that will support such things as:



- Special agency requirements including management of classified data and security enclaves,
- Enterprise license procurements for applications that while not part of the standard desktop configuration, are utilized by a significant number of users to achieve benefits from this approach, such as GIS software,
- Accommodation for users with disabilities, and
- Electronic records management

The Help Desk component of EUSS will provide a common automated technical support framework that will meet the needs of most agencies including those in secure vs. non-secure environments. This framework would work with the standard footprint for the desktop configuration and determine the frontline and backline support roles, with an aim to make an on-site staffing presence at the desktop the least important part of the new help desk requirements.

The current state of a typical Desktop Service Delivery Model has much of the support being provided through various levels of technical staff who are manning the help desk. As little as 10% of resolutions come from utilization of on-line or automated tools. As automated tools become simpler and easier to use, they will become more widely deployed and used by help desk service providers.

The future state would move toward three levels of service delivery which is more focused on automated services and less on on-site service which will further reduce costs. This shift will require organizations to evaluate the preparedness of their desktop service processes to determine whether they will be operationally effective in an automated service environment.

**Table 7: Service Level Agreement Description & Performance Metric Required for EUSS, MSSS, and TSS**

| <i>Infrastructure Area</i>                         | <i>SLA description</i>  | <i>Performance Metrics</i>   |
|--|---|--|
| <b>End User Systems and Support</b>                | Identifies parties<br><br>Specifies services to be provided, including quantities, metrics, and agreed level of performance<br><br>Maps services to mission | Common metrics include: Abandon Rate (ABA), Average Speed to Answer (ASA), Time Service Factor (TSF), First Call Resolution (FCR). Also, see Table 3, Cost and Service Improvement Plan.<br><br>The actual metrics will be determined during the architecting of the infrastructure, described in Major Technical Milestones, Table 2. |
| <b>Telecommunications Systems and Support</b>      |   | (Enter Service Level requirement and performance metric)   |
| <b>Mainframes and Servers Services and Support</b> |   | (Enter Service Level requirement and performance metric)   |

## K. BEST PRACTICES

To meet its optimization goals, the Department has established the following objectives, and for each objective one or more IT strategies has been specified. The strategies in this document form the basis for investment planning, and the performance objectives form the basis for investment oversight through performance measurement.

- Enable the Mission through Information Sharing - Provide quality electronic solutions that allow mission information to be shared in a timely manner, easily and appropriately, both inside and outside the Department. This goal supports the IT needs of the Department's mission.
- Enable the Mission through Federated Solutions - Provide the necessary means possible to successfully complete operational, logistical, and supportive tasks via cross-government functions. This goal supports the common IT solution needs of similar or related DoC functions.
- Support Effective and Efficient Use of IT Resources - Establish, institute and improve management processes and policies to support and improve the Department's IT performance and continuity. This goal supports the IT management needs of the CIO.
- Provide Common Resilient and Secure Infrastructure - Provide a seamless, reliable, secure, and cost effective infrastructure for conducting Department-wide electronic business. This goal supports the basic IT needs of all DoC employees, regardless of the mission area in which they are working. IT Infrastructure is foundational to enabling the mission through Information Sharing.
- Leverage ITI LOB Common Solutions - Establish and institute common frameworks for all Federal entities to synergistically overcome universal challenges. This goal supports the Department's need to provide efficient and consistent administrative capabilities across DoC.

By adopting these goals, the Department's CIO is effectively tasking all OUs, including NOAA, with developing an infrastructure to enable government-wide customer-centric services. This will enable interoperability of functions across agencies and programs and enable collaboration within and across agencies, sectors, and government levels. This section focuses on infrastructure as it is or should be managed today in preparation for moving to a fully integrated LoB service delivery model. Significant cost savings are anticipated when redundant systems and processes are merged into a single point of service delivery. Key objectives for optimizing the infrastructure through better asset management include: Identifying hidden costs; reducing service costs and total costs of ownership, increasing virtualization; improving operational effectiveness; and redesigning for interoperability.

NOAA's IT infrastructure optimization efforts in the EUSS area will include consolidation, shared services, aggregate purchases and best practices to provide products and services for the user, all in a secure, customer centric environment.

Examples of NOAA Best Practices:

#### End User Systems and Support

- Include full cost in mission planning, including the IT infrastructure requirement
- Manage the IT infrastructure for cost-effectiveness, by employing methods such as:
  - choosing COTS over custom software
  - monitoring service quality, for example, with customer satisfaction surveys
  - eliminate redundancies

#### Telecommunications Systems and Support

#### Mainframes and Servers

## **L. RELATED PLANS AND DOCUMENTS**

NOAA's IT Infrastructure Optimization Plan is related to several other IT planning, management, and reporting documents. The Optimization Plan is structurally and substantively related to and shares many elements with the:

Consolidated OMB-300 for IT Infrastructure, as per circular A-11;

OMB-53 for IT Infrastructure, as per circular A-11;

Federal Enterprise Architecture (FEA) submission;

NOAA Strategic Plan;

NOAA Strategic IT Plan;

NOAA Operational IT Plan;

IT Services Program Operating Plan 2010-14 (PPBES); and

FY2008 Annual Operating Plan.

In addition to sharing the relationship described above, the following plans address specific optimization efforts that also have the status of independent mandates:

Comprehensive Plan of Action and Milestones (POA&M) for the Trusted Internet Connection (TIC) initiative, as per Memorandum-08-05 (M-08-05);

Implementation Plan for Commonly Accepted Security Configurations for Windows Operating Systems, as per Memorandum-07-11 (M-07-11); and,

Implementation Plan for Internet Protocol Version 6 (IPv6), as per Memorandum-05-22 (M-05-22).